

In the Claims

Please amend claims 1-18 as follows:

Please add claims 20-37 as follow:

1. (Currently Amended) An apparatus for warming-up a fuel cell, wherein a supply gas is supplied into the fuel cell and discharged as an exhaust gas after being utilized by the fuel cell, the apparatus having comprising:

_____ means for returning an exhaust gas, wherein the means for returning an exhaust gas which returns the exhaust gas to the supply gas depending upon the warming-up conditions of the fuel cell at the time when the supply gas is supplied into the fuel cell and it at the time the fuel cell discharges is discharged as the exhaust gas after utilizing the supply gas in the fuel cell.

2. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 1, wherein further comprising:

_____ a controller for controlling said means for returning the exhaust gas is controlled depending upon the temperature of the exhaust gas.

91 3. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 1, having further comprising:

_____ a compressor which discharges the exhaust gas from the fuel cell and which returns the exhaust gas to the supply gas.

4. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 2, having further comprising:

_____ a compressor which discharges the exhaust gas from the fuel cell and which returns the exhaust gas to the supply gas.

5. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 3, having further comprising:

_____ a pressure controller which controls the pressure of the exhaust gas from the fuel cell.

6. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 4, having further comprising:

_____ a pressure controller which controls the pressure of the exhaust gas from the fuel cell.

7. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 5, ~~wherein~~ further comprising:

a controller for controlling said pressure controller is controlled depending upon the temperature of the supply ~~air~~ gas.

8. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 6, ~~wherein~~

further comprising:

a controller for controlling said pressure controller is controlled depending upon the temperature of the supply ~~air~~ gas.

9. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 7, ~~wherein~~ further comprising a controller for controlling said pressure controller is controlled by comparing the temperature of the supply gas with a target temperature of the supply gas.

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10. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 8, ~~wherein~~ further comprising:

a controller for controlling said pressure controller is controlled by comparing the temperature of the supply gas with a target temperature of the supply gas.

11. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 1, wherein said supply gas is air which is supplied to an oxygen pole side of the fuel cell, and further comprising a controlling for controlling said means for returning the exhaust gas is controlled depending upon the amount of oxygen in the air supplied into the oxygen pole of the fuel cell.

12. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 11, wherein the means for returning the exhaust gas decreases the amount of exhaust gas to be returned when the amount of oxygen is decreased due to the power generation of the fuel cell, ~~the amount of the exhaust gas to be returned being decreased by the means for returning the exhaust gas.~~

13. (Currently Amended) An apparatus for warming-up a fuel cell ~~having a compressor, which supply~~ supplies a supply gas into the fuel cell and which discharges the supply gas as an exhaust gas after being utilized in fuel cell, said apparatus comprising:
a compressor for compressing the exhaust gas to generate heat by adiabatic compression and supplying the exhaust gas to the supply gas, characterized in that
wherein the supply gas is heated by heat generated by the adiabatic compression of the compressor the exhaust gas, the heated supply gas is supplied into the fuel cell to warm-up the fuel cell, and the all of the exhaust gas discharged from the fuel cell is returned to the compressor to form a circulation cycle during a warming-up period.

14. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 13, wherein said circulation cycle ~~possesses~~ includes a heat exchanger disposed between the supply gas before heated by the compressor and the exhaust gas after heated by the compressor, and the supply gas heated by the heat exchanger is supplied to the fuel cell.

91 15. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 13, ~~wherein~~ further comprising a controller for determining said apparatus judges whether or not the warming-up of the fuel cell has been completed, ~~and wherein~~ the power generation of said fuel cell is started after the warming-up is ~~judge~~ determined to be completed.

16. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 14, ~~wherein~~ further comprising a controller for determining said apparatus judges whether or not the warming-up of the fuel cell has been completed, and wherein the power generation is started after the warming-up is ~~judge~~ determined to be completed.

17. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 15, wherein the controller determines the judgment of the completion of the warming-up based is on the basis of the temperature of the exhaust gas discharged form from the fuel cell.

18. (Currently Amended) The apparatus for warming-up a fuel cell as claimed in Claim 16, wherein the controller determines judgment of the completion of the warming-up is based on the basis of the temperature of the exhaust gas discharged form from the fuel cell.

19. (Original) The apparatus for warming-up a fuel cell as claimed in Claim 13, wherein said supply gas is air which is supplied to an oxygen pole side of the fuel cell, when the amount of oxygen in said circulation cycle is decreased due to the power generation of the fuel cell, the fresh air is taken to replenish oxygen.

20. (NEW) The apparatus of claim 1, wherein said means for returning comprises a three-way valve for switching between an exhaust position for discharging exhaust gas from the fuel cell and a returning mode for returning the exhaust gas to the supply gas.

21. (NEW) The apparatus of claim 1, further comprising a heat exchanger for transferring heat from the exhaust gas to the supply gas, wherein the heat exchanger is disposed between said means for returning an exhaust gas and a discharge port of the fuel cell.

22. (NEW) The apparatus of claim 1, further comprising a humidifier for humidifying the supply gas.

9/ 23. (NEW) An apparatus for warming-up a fuel cell, wherein a supply gas is supplied into the fuel cell and discharged as an exhaust gas after being utilized by the fuel cell, the apparatus comprising:

means for returning an exhaust gas, wherein the means for returning an exhaust gas returns the exhaust gas to the supply gas when the temperature of the fuel cell is below a predetermined level.

24. (NEW) The apparatus of claim 23, wherein the means for returning an exhaust gas stops returning the exhaust gas to the supply gas when the temperature exceeds the predetermined level.

25. (NEW) The apparatus of claim 23, wherein the means for returning an exhaust gas returns all of the exhaust gas to the supply gas when the temperature of the fuel cell is below a predetermined level.

26. (NEW) An apparatus for warming-up a fuel cell, wherein a supply gas is supplied into the fuel cell and discharged as exhaust gas after being utilized by the fuel cell, the apparatus comprising:

means for returning an exhaust gas, wherein the means for returning an exhaust gas returns the exhaust gas to the supply gas depending upon the conditions of the supply gas when the supply gas is supplied into the fuel cell and the conditions of the exhaust gas after the fuel cell discharges the exhaust gas.

27. (NEW) A method for warming-up a fuel cell, comprising the steps of:
supplying a supply gas to a cathode of a fuel cell, wherein the fuel cell reacts the supply gas to produce an exhaust gas;
measuring the temperature of the exhaust gas; and
returning the exhaust gas to the supply gas when the temperature of the exhaust gas is lower than a predetermined level.

28. (NEW) The method of claim 27, further comprising the step of discharging the exhaust gas from the fuel cell when the temperature of the exhaust gas exceeds the predetermined level.

9/ 29. (NEW) The method of claim 28, wherein the step of discharging comprises moving a three-way valve from a returning position to an exhaust position.

30. (NEW) The method of claim 27, further comprising the step of measuring the temperature of the supply gas when the temperature of the exhaust gas is lower than a predetermined level.

31. (NEW) The method of claim 30, further comprising the step of decreasing an opening in a pressure control valve to increase the temperature of the exhaust gas if the temperature of supply gas is less than a predetermined level.

32. (NEW) The method of claim 27, further comprising the step of:
compressing the exhaust gas to increase the temperature of the exhaust gas to produce compressed exhaust gas.

33. (NEW) The method of claim 32, further comprising the step of:
measuring the temperature of the compressed exhaust gas.

34. (NEW) The method of claim 33, further comprising the step of:
increasing an opening in a pressure control valve if the temperature of the compressed
exhaust gas exceeds a predetermined level.

35. (NEW) The method of claim 33, further comprising the step of:
generating an alarm if compressed exhaust gas continues to exceed predetermined
level after a predetermined time period.

36. (NEW) The method of claim 32, further comprising the step of returning the
exhaust gas to the supply gas during a time period when the fuel cell is starting up.

9/ 37. (NEW) A method for starting a fuel cell, wherein a compressor is provided
within a circulation line, comprising the steps of:
supplying a supply gas to a cathode of a fuel cell, wherein the fuel cell reacts the
supply gas to produce an exhaust gas;
drawing the exhaust gas using the compressor; and
returning the exhaust gas that has been heated through the adiabatic compression in
said compressor to the supply gas.
